

Appl. No. 09/480,986
Amdt. dated [insert date]
Reply to Office Action of February 4, 2004

PATENT

REMARKS/ARGUMENTS

Claims 1-30 are pending in the present application. Claims 1, 9, 17, 18, 22, 25, and 28 have been amended. No new matter has been added in the amended claims. Reconsideration of the claims is respectfully requested.

Claim Rejections - 35 U.S.C. § 102

Claims 1-30 were previously rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,144,353 to McKnight.

I. The Pending Claims

As was previously discussed, the present application is directed to a method and apparatus for improved performance liquid crystal displays. Amended claim 1 clarifies the scope of the invention by explicitly including the limitation that in step a), a single transition voltage is applied to the plurality of pixel elements via transistors uniquely coupled to pixel electrodes. Amended claims 9 and 17 include similar limitations. This limitation is not taught or suggested by McKnight and thus, the claimed invention is patentably distinct over the cited prior art.

II. McKnight

McKnight appears to disclose a display system in which for one frame or sub-frame, a display is quickly driven dark and held dark for a period of time, Fig. 2C, t_0-t_1 , while pixel data is loaded onto the pixel electrodes, col. 9, lines 39-41. To drive the display dark, the cover glass voltage (V_{CG} 151) is driven to V_B for time t_0-t_1 . It is noted, that V_{CG} is applied to a common electrode, the cover glass, and not individual pixel electrodes. Between t_1 and t_2 , the cover glass voltage V_{CG} is grounded, and the liquid crystal material in a pixel obtains a pixel intensity curve as seen in Fig. 2C, 154.

II. McKnight Distinguished

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A. Claim 1

Amended claim 1 recites, in part, " a) applying a single transition voltage to the plurality of pixel elements via transistors uniquely coupled to pixel electrodes on the display during a first period of time within a first field time." McKnight does not teach or suggest this claim element. On the contrary, as noted by the Examiner, McKnight appears to teach "transition voltages [Fig. 2C; 151] being applied to pixel electrodes [Fig. 2A; 108]" via the common cover glass electrode 108. (Office Action at page 9 ¶ 7). As further noted by the Examiner, "the 'cover glass electrode' [108]" is "commonly shared (amongst the pixels)." (Office Action at page 9, ¶ 7).

As illustrated in FIG. 2A of McKnight, McKnight draws a distinction between the common cover glass electrode 108, which is driven by an electrode control driver 110 and the individual pixel electrodes 104, which are driven by pixel driver logic 102. In fact, FIGS. 6A-6D of McKnight show various pixel circuits and "control transistors which are used to selectively load the pixel electrode." (col. 14, lines 33-34 and FIGS. 6A-6D). McKnight appears to teach applying a control voltage 151 to common electrode 108 via common electrode control driver 110. However, McKnight does not teach or suggest "applying a single transition voltage to the plurality of pixel elements via transistors uniquely coupled to pixel electrodes," as recited, in part, by amended claim 1. Thus, claim 1 is patently distinct over the cited prior art and in a condition for allowance.

B. Claims 2-8

Claims 2-8, which depend from claim 1 are believed to be allowable for at least the same reasons given above, and more particularly, for the specific limitations they recite.

C. Claim 9

Amended claim 9 recites, in part, applying "a first transition voltage to the plurality of pixel elements via drive transistors individually coupled to pixel electrodes during a first time period within a first field time." As discussed in relation to claim 1, rather than teaching this claim limitation, McKnight appears to disclose applying a control voltage 151 to

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the common electrode 108 through the use of common electrode control driver 110. (McKnight FIG. 2A). McKnight does not teach or suggest applying a first transition voltage "via drive transistors individually coupled to pixel electrodes," as recited, in part, by amended claim 9. Thus, amended claim 9 is patentably distinct over the cited prior art and in a condition for allowance.

D. Claims 10-16

Claims 10-16, which depend from claim 9 are believed to be allowable for at least the same reasons given above, and for particularly, for the specific limitations they recite.

E. Claim 17

Amended claim 17 recites, in part, applying "a first voltage to the plurality of pixels via drive transistors uniquely coupled to each of a plurality of pixel electrodes during a first time period of a first field and configured to apply a second voltage to the plurality of pixels via drive transistors uniquely coupled to each of the plurality of pixel electrodes during a first time period within a second field." As discussed in relation to claims 1 and 9, McKnight does not teach or suggest this claim element. Thus, amended claim 17 is patentably distinct over the cited prior art and in a condition for allowance.

F. Claims 18-21

Claims 18-21, which depend from claim 17 are believed to be allowable for at least the same reasons given above, and for particularly, for the specific limitations they recite.

G. Claim 22

Amended claim 22 recites, in part, "applying a first voltage via drive transistors uniquely coupled to pixel electrodes of a plurality of pixels of the liquid crystal display to initiate a transition of liquid crystal material in the plurality of pixels to a clear state within a first color field." Amended claim 22 is asserted to be allowable for at least the same reasons given above for claims 1, 9, and 17, and more particularly, for the specific limitations it recites.

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H. Claims 23-30

Claims 23-30, which depend from claim 22 are believed to be allowable for at least the same reasons given above, and for particularly, for the specific limitations they recite.

Claim Rejections - 35 U.S.C. § 112

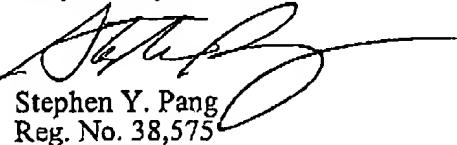
Claims 18 and 28 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention. Claims 18 and 28 have been amended to more fully clarify the scope of the invention. Amended claims 18 and 28 are therefore in a condition for allowance.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,



Stephen Y. Pang
Reg. No. 38,575

TOWNSEND and TOWNSEND and CREW LLP
Two Embarcadero Center, Eighth Floor
San Francisco, California 94111-3834
Tel: 650-326-2400
Fax: 415-576-0300
SYP:CCL:dhe

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